

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 – 12 (canceled)

Claim 13 (new): A composition comprising at least two oligonucleotide probes, which specifically hybridize to a polymorphism in a DNA sample, and an amplified mixture of DNA isolated from a genome, wherein the amplified mixture of DNA is made by cleaving a genomic DNA sample with at least one restriction enzyme, thereby providing restriction fragments;

ligating adapter nucleic acids to the DNA restriction fragments;  
providing primers that are complementary to the adapter nucleic acids; and,  
amplifying the DNA restriction fragments by the polymerase chain reaction by extending the primers, thereby providing the amplified mixture of DNA.

Claim 14 (new): The composition of claim 13, wherein the at least two oligonucleotides are immobilized on a solid support.

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Claim 15 (new): A method of characterizing a nucleic acid, comprising:  
providing at least one oligonucleotide probe which specifically hybridizes to a polymorphic genetic linkage marker in a genomic DNA sample;  
amplifying a mixture of nucleic acids comprising a group of genome fragments comprising polymorphisms, thereby providing an amplified nucleic acid mixture of genome fragments; and

hybridizing the at least one oligonucleotide probe to the amplified nucleic acid mixture, thereby detecting at least one nucleic acid fragment in said amplified mixture.

Claim 16 (new): The method of claim 15, wherein the oligonucleotide probe is a member of an array of oligonucleotide probes, which array comprises additional oligonucleotide probes which hybridize to one or more polymorphic genetic linkage markers.

Claim 17 (new): The method of claim 15, wherein the amplified nucleic acid mixture is made by cleaving a genomic DNA sample with at least one restriction enzyme, thereby providing restriction fragments;

ligating adapter nucleic acids to the DNA restriction fragments;

providing primers that are complementary to the adapter nucleic acids; and,

amplifying the DNA restriction fragments by the polymerase chain reaction by extending the primers, thereby providing the amplified nucleic acid mixture.